THIS WEEK AT THE THEATRES.

A great deal of merit in the play and the players will have to be shown at the Empire to-morrow night in order to realize the expectations of "The Masqueraders." Everybody who keeps advised of London theatricals knows, in a general way, the nature of Henry Arthur Jones's latest drama, and that in particular it contains one intensely engrossing scene, in which a husband and his wife's lover make her the stake in a game of cards. Such an episode might easily be futile if the stage use of it were not expert, but in this case it is said that the author has led up to it cleverly and presented it powerfully. Of course, the return of Charles Frohman's stock company is sufficient of itself to make a notable theatrical occasion and to assemble an audience of brains and fashion at the modish Empire. Henry Miller, William Faversham, and Viola Allen are assigned to the characters of the lover, the husband, and the wife. Others named in the cast of twenty-two personages are J. E. Dodson, Joseph Humphreys, Alice Fischer, Robert Edeson, Elsie DeWolf, William Thompson, Ida Conquest, W. H. Crompton, Genevieve Reynolds, and E. Y. Backus. Under all the circumstances, a duplication of "The Masqueraders'" foreign success is likely to ensue.

Daniel Frohman's company is giving point and polish to "A Woman's Silence." This latest of Sardou's comedies, which had its original performance at the Lyceum, is to be acted at the London Comedy this season, with Winnifred Emory in the rôle of the persistently silent heroine, and at the Paris Gymnase, to open next season. Isabel Irving has taken her place as a member of the Lyceum organization, and the leading female rôle in this play has been assigned to her.

A. M. Palmer's company is yielding good service to "The New Woman" at his Broadway house. The return of gentle Annie Russell to the stage, after years of illness, has been an assistance to Sydney Grundy's comedy. The fun which is poked at the mannish women of the day, written and acted in a farcical spirit, excites laughter, and it is as a satire that the piece appeals strongly to appreciation. Nothing in it need be taken seriously, save Miss Russell's plaintive grief as the unappreciated wife.

Augustin Daly's company, led in a queenly fashion by Ada Rehan, retaining James Lewis from among its former favorites, and with Henry E. Dixey as a recruit, is employed in "Twelfth Night." Although the present performances are not equal to those of the past in some of the acting, the ornamentation of the comedy with beauties of scenery and costume is the same as before. Several of the Americanized German farces formerly successful in the Daly repertory are to be revived soon.

Of the "stars" now visible in our theatrical sky, one will to-morrow night offer a new drama. The play is by Mrs. Romualdo Pacheco, who introduced herself to the stage several years ago with the farcical "Incog," and will be tried at the Star to start Rose Coghlan's engagement to-morrow night. The new work is entitled "To Nemesis; or, Love and Hate," and its rôle for Miss Coghlan is that of a Swiss girl who falls in love with a French nobleman. He breaks his promise of marriage, whereupon she thinks she hates him; but when, having become wealthy and titled, she revengefully involves him in a duel, she saves his life and weds him. That indicates a strongly emotional part, with a range from gay pretense to genuine savagery, and if that be so the actress should do well with it. Her successes have been achieved with scowls or smiles, according to the nature of the task set for her. It would seem that there are other strong parts than that of the heroine, as it has been deemed worth while to employ Frederic De Belleville, Effie Shannon, Maxime Elliott, J. W. Shannon, Cecil M. York, Hattie Russell, Henry Jewett, Mason, Mitchell, and John T. Sullivan to make up the cast. Some of Miss Coghlan's best-remembered triumphs were won on the Star's stage, when Wallack was there, and we may hope that another will now be added to her list.

William Gillette, in Americanizing "Too Much Johnson" from the French, was shrewd and able enough to turn out a character in which he might be very effective as a comedian, and as a consequence his return to the footlights is successful. The piece, with its pronounced types of familiar character mixed up in a fresh and novel complication, gives the best sort of light amusement at the Standard.

William Hoey's fun in "The Flams," at the Bijou, is of the kind that served many years in "A Parlor Match," and, to make the similarity still more marked, his companion in audacity is John C. Rice, almost a duplicate of his former partner, Mr. Evans. But the pair of adventurers in "The Flams" have a fresh lot of experiences, the slang and jokes are up to date, and Mr. Hoey sings new songs, besides old ones. The piece carries a good variety show.

Wilson Barrett is another "star" who had a hand in fitting to himself the character which he is now enacting, for he collaborated with Hall Caine in dramatizing "The Manxman," the drama current at the American. The result is that in the guise of that play's hero he is quite as well placed as in anything he has offered to the New York public. Most of the members of his company are strangers here, and possess an interest of novelty. Maud Jeffries is praiseworthy as the Manx heroine.

The week brings forth nothing new in the field of musical pieces, but comic opera will have an Offenbach revival in "The Grand Duchess," at Abbey's, on Tuesday evening. The theatre will be closed to-morrow for a final rehearsal, and that indicates painstaking in the preparations. We have had Lillian Russell before as the whimsical maker of war and love in *Gerolstein*, and it takes no gift of prophecy to foretell that she will be more enjoyable than she was in "The Queen of Brilliants."

Two Whitney companies are now with us in "Jacinta," at the Fifth Avenue, and "Rob Roy," at the Herald Square. Very dainty and artful is Louise Beaudet at the top of the cast of "Jacinta," with her winsome mannerisms and coquettish airs. Contrastingly emphatic are the comedians in enforcing the fun of the comic opera. The whole affair is agreeable to hear and to see, with its music and pictures.

The vogue earned by "Rob Roy," at the Herald Square, is emphatic. This comic opera comes so close to being as good as the same author's "Robin Hood" that it almost satisfies the demand for a successor to that entertainment. Several songs have been added, the comicalities have been accentuated, and the scenic show was admirable from the first. Nothing else will be needed at that theatre in months.

The Bostonians are doing well with "Prince Ananias," at the Broadway. The judicious treatment of the subject of playmaking and play acting does not prove to be beyond the limits of general comprehension. As to the music, it was liked so much that encores lengthened the performance unduly, and the piece had to be cut to the extent of half an hour in order to end at 11 o'clock. Caroline Hamilton's name goes into the cast to-morrow. Miss Hamilton will alternate with Miss Morgan from week to week.

The amateur soldiers in "A Milk White Flag" are camped on the stage at Hoyt's for the winter. They and the women of the play have settled down to a definite line of conduct for the amusement of the audiences, as the author seems to have stopped altering his work by the introduction of new things, having built up the entertainment to a satisfactory degree. A medley of songs was the last addition.

An older Hoyt play, "A Temperance Town," containing the author's anti-abstinence ideas, forcibly expressed and comically illustrated, is now at the Harlem Columbus. Important in the present cast are L. R. Stockwell, Lee Harrison, William H. Curry, and Anna Robinson. The Vermont village types of character are as ludicrously drawn as any that Mr. Hoyt has ever made, and their conduct is amusing.

The advertising of three matinées a week at the Fourteenth Street indicates the popularity of "The Brownies" with the children, who are already well acquainted with Palmer Cox's creatures in print. There is enough of ballet, farce, burlesque, and vaudeville in the entertainment to amuse adults, too. Changes in the interpolations are made from time to time.

The progress of "Little Christopher Columbus" is devoid of particular incident at the Garden. The process of change in the play and its players has produced at last a first-rate entertainment of its kind, very frothy and frivolous, with nonsense dominant, and with feminine nudity in its "living pictures." There must be a large demand for that style of thing, else there would not be such a remarkable supply.

The similar burlesque that stayed a year at the Garden, and was labelled "1492," is at the Brooklyn Columbia for a week, with its corresponding make-up of music and frolic, and with Mr. Jones's tramp, Miss Vaughn's tattered balladist, Mr. Harlow's travesty of Lillian Russell, and Mr. Favor's impecunious treasurer still conspicuous in the mixture of diversions. Of course, "1492" also retains its "living pictures."

One of the week's melodramas is new. "The Cotton King," by Sutton Vane, will be brought to the Academy of Music to-morrow from the London Adelphi. It is an example of the playmaking in which the late Henry Pettit and Sir Augustus Harris used to lead, and in which the time-tried, but hardly time-worn, ingredients are newly compounded into exhilarating theatric doses. The villain has a separate crime in each act, the hero is cleared of obliquy again and again only to be loaded anew with unmerited troubles, the heroine is pursued, overtaken, and rescued repeatedly, and everything is whooped up with a vim that never flags. Of course, there is a "sensation" scene. It is in a cotton mill, with the printing machinery in operation. Heavy bales of goods are being lifted in an elevator, under which the villain fastens the heroine, intending that the descending car shall crush her to death. Need it be added that the hero saves her life? This brave rescuer is an American, nicknamed the Cotton King, and he will be impersonated at the Academy by Eben Plympton. Among others in the company are Dominick Murray, Dan Collyer, May Wheeler, Bijou Fernandez, and Amelia Somerville.

The stirring war drama, which during three months has held the Academy's stage with its battle scenes, "Shenandoah," with its blended love story and Sheridan's ride, goes to the Harlem Opera House for a week. It will be presented there with the same numerous outfit of soldiers and horses, with a company headed by Mr. Ratcliffe and Miss Tyler as hitherto, with no popular element diminished.

A native melodrama that has been hurrahing around town this season and rousing its audiences to patriotic enthusiasm by representations of heroic Yankee tars in South American waters, is entitled "Old Glory." This naval thriller, with the Stars and Stripes waving all through and over it, is the week's play at the People's, in the Bowery. Its views of life aboard a cruiser and of a battle in a Chilian bay are boldly graphic.

Still another materialistic American piece, the author of which evidently studied to please the admirers of rough realism on the stage, is "Shaft Number Two," at the Grand Opera House. It is devoted to the imitation of things that happen to miners. Chloroform, electricity, a broken rope that suspends an elevator, and a stroke of lightning that kills the villain, all figure in one of the scenes.

The play at Niblo's, too, is extremely melodramatic, for it is "The Stowaway," in which the depths of criminal London are sounded. Realism abounds in it, and virtue is handled roughly by vice before coming out triumphant at the end of the evening. It is in this piece that two ex-convicts, Spike Hennessy and Kid McCoy, give a practical lesson in burglary by blowing a safe open and rifling it. The managers of "The Stowaway" are not engaged in elevating the stage. An entertainment by Comstock's minstrels will be given at Niblo's this evening.

Acrobatics always constitute a considerable share of vaudeville's bills, and there has been of late a tendency toward the sorts of exercise that necessitates very muscular arms. The latest exponent of this style of performance is Eugenie Petrescu, who comes to Koster & Bial's to-morrow night. These names are also on the programme: A. O. Duncan, the Rossow brothers, Chelli, Evan Tschernoff, the Forrest brothers, the Finneys, and the Bruet-Rivieres. There are new living pictures to end the performance.

The Union Square again has acrobats prominently placed. They are the Martinettis, two brothers, who are seemingly the equals of the most powerful professional strong men, and as skilled and as graceful as they are muscular. Nina Farrington will give a sketch with songs and Bertoldi will go through her contortions. These are the remaining ones: Fish and Quigg, Stinson and Merton, Collins and Collins, the three Rackett brothers, Rice brothers, Goldie and St. Clair, Eldora and Norine, Bryant and Richmond, Gus Richards, the Sexton brothers, Frank Burt, and the Reed family.

A novelty is promised from Proctor's in the reappearance of Susie Kerwin. She was the leading singer in the opera company that held this stage for several months, but of late has been employed in superintending the living pictures. Her specialty is entitled "The Musical Dolls." James Thornton remains for another week, and has these entertainers for companions: Ford and Frances, James G. Cowper, Thomas Haley, Cain and Du Bois, Theodore, Reta Durand, Theo. Delmain and O'Brien, Silbor, Baldwin and Dailey, the Bernerds, Hill sisters, Rose and Harry Wentworth, Earle and Bradley, Mead and Werntz, and Annie Lloyd.

Tony Pastor announces as his contribution to the entertainment at his theatre a song entitled "The Tramp Who Slept at Pastor's." His companions are Al H. Wilson, the Preston sisters, in their last week; J. G. Harrington, Sherman's dog circus, Burns and Coakley, Louise Allston, the Highleys, the McNulty sisters, and the Venola brothers.

Gus Hill's specialty of club swinging is accorded the place of importance in the bill of Miner's Eighth Avenue, and his aids are Hacker and Lester, Estelle Wellington, Wills and Halpin, Dryden and Mitchell, Nelson and Milledge, Montague and West, and Charles W. and John A. Mason.

Among the principals of the Lily Clay company, which holds Miner's Bowery this week, are Melville, Mlle. La Mar, De Mora, Evans and Huffman, Julia Melrose, Blanche Creago, and Leslie and Richards.

Visitors to the city find a deal of novelty at the Eden Musée, because there are no touring shows of wax figures. Danko Gabor's band continues with two daily concerts.

The young man who last week jumped from the Brooklyn Bridge is to be seen this week at Huber's Museum. With him are Jarrow, the strong boy, and a young fellow who has journeyed as far as New York in his trip from Texas to Jerusalem. Besides these are the Prujoi bears, the Oura acrobats, Frank's broom factory, Clawhammer Gus, the Weston sisters, Hughes and Lindsay, Myles and Raymond, James Gray, George Barton, and the Hassman trio.

The most conspicuous freak at Doris's Museum is its smallest. Prince Tinymite is his stage name, and he is one of the smallest of stage entertainers. He is rivalled by a performer named Del Kano, whose gifts are entirely the result of deep study, his instructive specialty consisting of biting red-hot iron. The stage show is "Humpty Dumpty."

John H. Russell, ill and bankrupt, will next Thursday make a large cash draft on the good will which he deposited, when prosperous, with his professional friends. They have arranged a matinée at the American, and the programme comprises the Seidl orchestra, Comstock's minstrels, the Liliputian athletes, the Rossou brothers, Wilson Barrett in "Chatterton," Marian Manola and Della Fox in songs, William Hoey and some of his companions from "The Flams," Louise Beaudet and the "Jacinta" company, one act of "Rob Roy," fragments from "Little Christopher Columbus" and "1492," the first act of "A Milk White Flag," Agnes Booth in "Afterthoughts," the Bostonians in "Prince Ananias," and the second act of "The City Directory" with the original cast as nearly as possible.

Fanny Davenport and a company are rehearsing "Gismonda," the drama which Sardou wrote for her to use in America while Sara Bernhardt used it in France. Miss Davenport has been notably successful in rôles fitted by the great French playwright to the great French actress, and a week hence, at the Fifth Avenue, we shall see whether another ambitious and costly venture in the same direction is to be equally triumphant. The preparations point to a fine production.

On the same evening Edward Harrigan will reopen his theatre with "Notoriety," one more of his representations of high and low life in New York. His company has been travelling since early last spring. Mr. Wild, Mrs. Yeamans, and the other favorites are still members, and will have congenial rôles in the new piece.

The Elks will hold a "lodge of sorrow" this evening at Hardman Hall in the presence of an invited audience. Frank Mordaunt will read a eulogy upon deceased members, and it is announced that the Rev. Dr. Houghton will deliver a prayer.

VOLUME TWO IS OUT.

It Is Part of the Adjutant-General's Report for 1893, and Seems Not to Be Popular.

Volume Two of the Adjutant-General's report for 1893 is out. It came out just before election, perhaps with the intention of making all who should see it repent and vote the other way. If so it seems to have succeeded.

Published volumes from the "Old Man" (so Major-Gen. Josiah Porter is usually called unofficially) generally are received gladly by the officers of the National Guard. They gather around the Sergeant-major, who issues the books, like the letters around Humpty Dumpty, and often application is made for a second copy of the volume in process of issue.

But there is no such demand for Volume Two of the Adjutant-General's report for 1893. Some seventy volumes were received at a regimental headquarters the other evening, and up to date only four copies have been taken; and one officer left his copy, for which he had just receipted, reposing on the table, where it still lies.

This apathy to Volume Two is due to the volume, not to the responsible author. It is a quarto volume of 1,260 pages, and weighs three pounds; and its contents consist, except for the title page, of the rosters of the First, Second, Third, and Fourth Regiment of cavalry, New York Volunteers. To some persons the book will be of value, but to the unfortunates who did not belong to the First, Second, Third, or Fourth Regiment of cavalry, New York Volunteers, a perusal of the dictionary will be exciting compared to a perusal of this volume.

Of course, there are stray facts of value, for none of Gen. Porter's writings can be wholly wanting in fascination. For instance, in the First Regiment John Abel is the first man, there is a John Kane to keep him company, and Theodore Zumloh is the last man alphabetically. Henry Abbe leads the Second Regiment, but Donat Zohler deserted, though his name tails off the list. Frederick Abrie and Michael Zimmerman mark the alphabetical limits of the Third Cavalry, and Jeremias W. Abels and George Zubller hold the Fourth Cavalry in place.

August Vanalaka, Fourth New York Cavalry, is borne also as Franalike, Vermaleke, and Vunalaka; William Taberman rejoices over his recovery from wounds as Fabelman, Yableman, and Tablemann; Breese Nellis of the Third can be found as Niles D. Breece, if one likes that name better. Patrick Flannigan of the Second enlisted Aug. 5, 1861; mustered in as Corporal Aug. 21, 1861; captured at Liberty Mills, Va., Sept. 22, 1863; admitted to hospital Nov. 21, Richmond, Va.; died of starvation Feb. 18, 1864, on Belle Isle, Richmond. James Fish of the same regiment enlisted Aug. 11, 1861; captured at Louisa Court House May 2, 1863; released at City Point May 14, 1863; captured at Warrenton, Va., Oct. 17; confined at Richmond Oct. 23; sent to Andersonville March 23, 1864; died there Oct. 11, 1864. William Erdman, Second New York Cavalry, enlisted as private Sept. 3, 1864, and on Nov. 30, 1864, was commissioned chaplain. Samuel C. Sprague enlisted in the First on July 18, 1861, and was mustered in as First Lieutenant the same day; on Sept. 13, 1861, was appointed regimental Adjutant, and returned to his company Oct. 18, 1862, and on March 8, 1863, was dismissed as a deserter.

These are only samples taken at random. New York State turned out some thirty regiments of cavalry, seventeen regiments of artillery, forty-four independent or separate batteries, and 194 regiments of infantry. At the rate of four to the volume, the Adjutant General's report will extend to more than sixty volumes; a library that will compare favorably with the official records of the rebellion, whereof series I, volume 43, part II, has recently been issued.

QUESTIONS BY SUN READERS.

A number of friends write in regard to the lines, "Could we with ink the ocean fill, &c." One friend says they are anonymous, and suggests some slight changes; two others say that the lines were found written on the walls of a cell in a private lunatic asylum in England; (Cirencester, one of these friends believes.) Two other friends ascribe the lines to Watts; one of them writes very pertinently:

"Almost certainly written by Watts. He must have spent his youth writing goody-goody verses for children (there is a 'For Children' department in some large hymnals; and the rest of his life writing hymns. This has the geographical and geometrical twaddle of most of his hymns, and is particularly like the following, which I heard in my childhood, attributed to Watts:

"'Were I so tall to reach the Pole,
To grasp the ocean in my span,
I would be measured by my soul—
The mind's the standard of the man.'

"Neither is in any hymnbook I have."

And another friend states positively that the lines are from the Koran! We thank all of these friends, especially the last.

1. Will you please explain how the apportionment is made as to the number of representatives for each State, as, for instance, New York is given 34. What is the detail in calculation? Show the figures. 2. Who determines or makes the apportionment? 3. If a State is admitted after the apportionment is determined by the latest census, how many representatives is the new State entitled to? 4. Are they eligible at the next Congress? 5. What is the nearest Post Office to "Monticello," the burial place of Jefferson.
R. O.

1. In actual practice, the House of Representatives decides how few new representatives shall be taken in. Thus in 1880 the population of the United States was 50,000,000, and there were 325 representatives. In 1890 the population was 61,000,000. If the number of representatives had been increased proportionately, the chamber would have been crowded; so the Republicans decided not to increase it proportionately. Their problem was to increase the representation, increase the number of inhabitants needed to elect a representative, and at the same time add as few representatives as possible to the Democratic States. New York's representation, they decided, should not be increased. Then by dividing the population of New York in 1890 by 34, the number of persons entitled to a representative was found. Then they had to apply that ratio to the other States; so now we have 356 representatives. The process is not logical, and not in real accord with the spirit of the Constitution. 2. The party in power. Tom Reed directed the latest apportionment. 3. One. The Constitution says that each State shall have one representative. 4. Why not? 5. Charlotteville, Va.

There were in not very remote times two hotels on the east side of Broadway, between the Stevens and the Astor House. The lower one—the Globe—has just been demolished to make room for the Manhattan Life Insurance Company, just below Wall street. The other—the Howard House (or hotel)—was on the corner of Maiden lane, and extended half way up the block to John street, and was, I think, kept by D. D. (Don) Howard in the fifties, before he took the Irving. The Maiden lane corner of the building is still standing. It is not so that where an American woman marries an unnaturalized Canadian and continues to reside in this State that she loses her American citizenship and follows the nationality of her husband. The marriage of an American to a Canadian woman naturalizes her, but an American woman wedding a Canadian does not denationalize herself, for there are thousands of unnaturalized Canadians who have married American wives to enable them to hold in their names real estate which the very liberal laws of this State preclude them from legally doing as foreigners.
W. J. M.

You may be right as to the two hotels, but you are wrong as to the rest. A woman follows the nationality of her husband. It may be that thousands of Canadian women hold land in this country, but they can't give clear titles to that land. We can contradict as well as you, if need be.

Kindly let me know if we have ever had a Pope at the head of the Catholic Church who had not previously been a priest? Was the office ever filled by a layman? If so, who and what date?
M. C. H.

Whether you had them or not, we do not know; but it is said that there have been Popes who were not priests when they were elected. One encyclopædia says that St. Anterus, Pope 238-239, was ordained after his election; and the "Lives of the Popes" leaves it in doubt if John XII., who became Pope when 16 years old, or Benedict IX., who was only 10 years old, were laymen at the time of their election. Since the time of Pius IV., 1559-1565, there has been a law that the Cardinals should choose one of their own number, and that had been the custom for two hundred years, ever since the time of Boniface IX., 1389. But the Cardinals are not necessarily in holy orders.

Can you give me the whole of a poem which was printed some twenty years ago, parts of which are as below? It is a dialogue between a visitor to the museum of plaster casts in Montreal and the curator of the collection, who had turned the *Discobolus* to the wall because he had no "pants" on:

"'Preferest thou then the doctrine of Judea to the doctrine of Hellas?'
The doctrine of thy connection with Mr. Spurgeon's haberdasher to the doctrine of the *Discobolus*?'

"But still blasphemed he further, saying:
'The *Discobolus* hath no doctrine;
But I, I am a person of the most respectable connections.
My brother-in-law is haberdasher to Mr. Spurgeon.'
O God! O Montreal!"
Q. L. X.

This is by William Henry Hurlbert, and was written some score of years ago, as you say. We have not the whole poem at hand.

In The Sun of Nov. 23 I read an article concerning American citizens residing abroad. I beg to know if it is a fact that the United States Government refuses to protect its citizens if they should happen to get into trouble while residing abroad? Now, I lived about two years in Ireland, and returned this fall. I rather think it is a fragile or weak Government which will not protect its citizens while compelled to reside abroad.
E. Shallow.

The United States will protect its citizens. The case to which you allude was that of Armenians who, the article said, came here to obtain naturalization, and then went back to Armenia as American citizens to defy the laws of Turkey. It has been denied that the Armenians do anything of the sort, but that has nothing to do with the duty of the United States to protect its citizens. But Americans in Turkey charged with crime are punishable by Turkish law; the only thing that the United States can do is to see that their citizens get the same brand of justice as the Turkish subjects get. Most Americans have the idea that, because they are Americans, they are amenable only to American law; but they're wrong. In civilized countries they are subject to the law of the land, whatever that may be.

In answer to John G. Stead's question you say that "444" was burned in 1876. That is a mistake; it was in the winter of 1866. I came to New York in the fall of 1865, and worked for a few months in a store at Broadway and Grand street. During that time the old music hall was burned. I don't know as this is of any importance, but thought you would not mind being set to right.
C. Francis.

It is not a mistake; "444" was burned on Feb. 8, 1876. It was burned just one week less than ten years before, too; in other words, in 1866, as you say, and on Feb. 15, to be exact.

Please inform me the price of a pound of bread in Great Britain. One man has wagered $5 that it is one penny per pound, and another wagers $10 that it is two pennies per pound.
J. M. O'K.

Suppose we don't know. There is no fixed price for bread—no price fixed by law. It varies as the price of flour varies.

Can you give me any information of the British copyright laws? In publishing a work in this country how can I protect it in England? Do I lose the English right by publishing it in this country first.
A. K.

The general rule in Great Britain is that in international copyright matters, a foreigner is entitled in Great Britain to the same privileges that his country gives to the Briton, so long as they are no greater than a Briton gets at home. Mark Twain has found out better than any other American how close he can sail to the wind of the English law, and escape jibing; you might write to him.

1. Has the city of Genoa any monument of any sort to the memory of Christopher Columbus? 2. Is the house he was born in preserved or its site known? 3. Is there any recognition of his remarkable career to be found in any place in the city? 4. Did Columbus first apply to the Genoese Government to aid him in the prosecution of his navigation plans? 5. What history contains the best record of his early life or while still a resident of Genoa?
F. A. B.

1. Yes; a statue of white marble, erected in 1862 in the Piazza Acquaverde. 2. The house called Columbus's birthplace still stands. It is said, however, by various "authorities" that he was born about fifteen miles from Genoa, at Cagoleto. 3. Yes; read the first answer over again. 4. No; he'd left Genoa some years before, and had been settled in Portugal for a dozen years. 5. Adams's "Life of Columbus," Harrisse's "Notes on Columbus" and his "Cristoph Colomb." (You probably cannot get these two.) See also Irving's "Life and Letters of Columbus."

What vessels were wrecked at Samoa last year? Give the exact date.
J. J. M.

The great hurricane at Samoa occurred not last year, or even the year before that. It occurred March 15, 1889, nearly six years ago. The United States men-of-war Trenton and Vandalia were destroyed, and the German war ships Adler and Eber.

My attention was called to a violin that a friend had purchased cheap, and from appearance, in comparison with one he had paid $150 for, it was equally as good an instrument. My friend thought it was quite as good in tone. I noticed, in looking inside, a label pasted there with the inscription (as near as I can remember, and not being a Latin scholar I am not sure that I have it correct) as follows:

"Antonius Stradivarius Cremonais
Faciebat. Anno 1715."

Do you know if this could be verified as showing the age of the violin, and if so who could do it. The present purchaser has not been deceived by this label even if it is a fake, which I suppose is possible.
W. W.

If every violin bearing the label of "Antonius Stradivarius Cremonais" had been made by Stradivarius, he would have been kept busy from the day of his birth to the day of his death, working twenty-four hours a day. Still, it is conceivable that your friend has secured a genuine Stradivarius. Let him go to some violin sharp if he doesn't mind being laughed at.

A. E. Merkel—Lovell, Coryell & Co. will publish the stories you speak of in February next in book form.

A. B. Bradley's Friends.—The Crystal Palace in this city stood on what is now Bryant Square. It was built in 1852-3, opened July 14, 1853, and burned down Oct. 5, 1858.

SOME POEMS WORTH READING.

The Triumph of Hinkey.

CARMEN FILII VALENSIS.

Hinkey piled into him, cracking and cuffing of him,
Kneeing him and crunching him, knocking out the stuffing of him,
Swatting him and smashing him, a-biffing and a-buffing of him.

Scientia emollit mores,
Nec sinit esse feros!
'Rah, 'rah, 'rah for football glories,
'Rah, 'rah, 'rah for football heroes!
Hinkey forever, 'rah, 'rah, 'rah!

Hinkey gouged one optic out, gave him an abdominal
Strain and wrench with a sweeping kick that really was phenomenal.
Did him up for good, I guess; now let us sing in common all:

Scientia emollit mores,
Nec sinit esse feros!
'Rah, 'rah, 'rah for football glories,
'Rah, 'rah, 'rah for football heroes!
Hinkey forever, 'rah, 'rah, 'rah!

Hinkey butted into him, Hinkey leaped on top of him
Broke his collar bone, drove into the ground the hairy mop of him,
With a daintiest uppercut broke the teeth and chop of him.

Scientia emollit mores,
Nec sinit esse feros!
'Rah, 'rah, 'rah, for football glories,
'Rah, 'rah, 'rah, for Eli's heroes!
Hinkey forever, 'rah, 'rah, 'rah!

Hinkey crept behind him, twisted off the thigh of him,
Tore off both his ears and then bust the other eye of him;
Then they got the stretchers out, Hinkey had made pie of him.

Scientia emollit mores,
Nec sinit esse feros!
'Rah, 'rah, 'rah, for football glories!
'Rah, 'rah, 'rah for Eli's heroes!
Hinkey forever, 'rah, 'rah, 'rah!

HOLWORTHY.

Georgia Leads.

From the Atlanta Constitution.

Ain't any State but Georgy with votin' every day;
No time to kiss yer sweetheart, no time for makin' hay;
From Monday still to Monday the blamed elections come,
With the blowin' o' the bugles an' the beatin' o' the drum!
An' it's vote! vote! vote!
Roll yer sleeves up, jerk yer coat!
Fer a little bit o' office,
Or an old five-dollar note!

Ain't any State but Georgy where there's votin' every day;
No time to go to meetin', or to pull a rose in May;
From week to week forever the blamed elections go;
You strike 'em in the springtime an' they're with you clean to snow!
An' it's vote! vote! vote!
Roll yer sleeves up, jerk yer coat!
Fer a little bit o' office,
Or a small two-dollar note!

Ain't any State but Georgy with votin' week by week;
Can't hardly git a minute with yer family to speak!
From year to year forever, the blamed elections come,
Till you want to spike the trumpets, an' you want to bust the drum!
An' it's vote! vote! vote!
While some feller steals yer coat;
Fer a little bit o' office,
Or a mean one-dollar note!

Punctuation.

From the Commercial Gazette.

When you wish to read at a headlong speed,
Or to write a sentence fleetly,
You should mind your stops, or the meaning drops,
And the sense gets lost completely.
So I write these lines to commend the signs
Which we use in our punctuation;
For the sign that's best, though I like the rest,
Is the note of interrogation.

Now a clever child has been sometimes styled
The most perfect type of beauty;
But the infant mind is to knowledge blind,
So to teach is an elder's duty.
Yet I would not ask for a harder task
Than a juvenile's education;
For each child I know, until twelve or so,
Is a note of interrogation.

It is passing sweet to a maid to meet
With the touch of the tender passion,
When a lover true is at hand to woo
In the old but immortal fashion;
And the girls all long for the same sweet song
Of a love throughout life's duration;
On its strains they dote, but its sweetest note
Is the note of interrogation.

The Old Violin.

From the Spectator.

[ANTON. STRADIVARIUS CREMONENSIS, FACIEBAT ANNO 1704.]

It boasts a peerless color, dried
By suns of Southern lands,
As fair as when, a thing of pride,
It left the master's hands;
For jealous time forgets and fears
That velvet sheen to tarnish,
That mystery, guarded through the years,
Of Stradivarius varnish.

Music that once across it swept
To-day about it clings,
The threnodies of souls that wept
Their grief above the strings;
And hours of passionate appeal
So gift it with sensation
That such as lift it now may feel
A thrill of sad vibration.

And still it wakes the note of strife,
Of gladness or distress,
Playing on hidden chords of life
That words may not express;
Some strange desire, some vague delight,
That sets the soul a-wondering,
As when men hear throughout the night
The restless ocean thundering.

Surely our wonderous modern wit
Hath something yet to learn,
Though progress leap to welcome it
At each triumphant turn;
Something, while that frail pinewood toy
Lies there upon the table,
And dims our brill'iance to alloy
With yonder dusty label.

ALFRED COCHRANE.

The Astronomer.

From the Inter-Ocean.

They had met and loved and married,
But in taste they did not agree;
While still together they tarried
Each was longing to be free.

And at last love's bands were riven,
For they fought with equal zest;
Half his wealth to her was given,
And the lawyers took the rest.

From their severed ways' digression
He had hoped to settle down
To attend to his profession,
And by working gain renown.

But fame's meteoric brightness
As a great astronomer,
Seemed to quickly lose its lightness,
When he missed the smiles of her.

And he had that tired feeling,
That his labor was in vain;
And the chains were round him stealing
Which draw down to sin's domain.

For the dipper's charm no longer
Did his glowing passion yearn,
But for something that was stronger
Now a taste began to burn.

Never even did he ponder
On the signals just from Mars;
To the opera he would wander
There to hear the singing stars.

And one night he became enamored
Of a singer's voice so sweet,
For her love his spirit clamored
To retard his downward feet.

Costly flowers he oft would send her,
Laden with the garden's breath,
And a score of notes he penned her
That to lose her would be death.

Soon a meeting she appointed,
He prepared him for the strife,
And with love's true grace anointed,
He soon met his former wife!

For her hand with ardor plead he,
As in earlier, brighter years;
All those horrid dark spots, said he,
I will wash away with tears.

Now again they are united
In the bands of truest love,
And their lives will move on plighted
While the stars shall shine above.

E. C. FULLER.

Time.

From Harper's Monthly.

Do you wish me then away?
You should rather bid me stay;
Though I seem so dull and slow,
Think before you let me go!

Whether you entreat or spurn
I can nevermore return;
Times shall come and times shall be,
But no other time like me.

Though I move with leaden feet,
Light itself is not so fleet;
And before you know me gone
Eternity and I are one.

W. D. HOWELLS.

The Song of a Tramp.

The midnight stars are blazing
From out the welkin wide,
And o'er the restless river
They dance on its shimmering tide.
While homeless and friendless,
I wander wild and free;
I care for no one, good or bad,
And no one cares for me.

The north wind, fierce and hard with frost,
Comes whistling o'er the moor;
'Tis bitter as the faces
I meet at every door.
The brown leaves on the oak trees
Are singing in the blast;
They seem to think of summer time
And dream of pleasures past.

But never a thought of pleasure
Or happy dream have I,
The spring hath no more hope for me
Than winter's midnight sky.
For then in wood or field I sleep,
Or damp and loathsome cave,
And now to warmer barn I slink,
A coward and a knave.
And homeless and friendless,
I wander wild and free;
I care for no one, good or bad,
And no one cares for me.

D. J. DONAHOE.

PROSPERITY.

Can It Be Restored by Increasing the Machinery of Exchange?

An English correspondent writes this:

"Prices for wheat are so low as to bankrupt the growers, English-grown making but 17 to 19 shillings per 504 pounds yesterday. Our farmers are in despair, and many of them must fail, while landlords are not a whit better off, as rents that were very low are still falling and tenants disinclined to enter upon new engagements even at nominal rents. I fear that many of us may never live to see an increase of rents or of prices for farm products, and yet prices for other commodities are nearly as low and still receding.

"Your Sun article in relation to the adoption of modern industrial processes and machinery by the Japanese has caused a sensation with the manufacturers to whom it was shown. With such a development, and by the adoption of modern arms and tactics, it is not surprising that they are able to punish the Chinese in such a dreadful manner; and with such an industrial equipment, accompanied by such phenomenally low wages, and making their capital do double duty by working day and night, it is no wonder that the Japs have been able to turn the balance of trade their way, nor is it so very astonishing, when we consider these advantages, that under present conditions, coupled with the continued growth of the cotton manufactures of India, the trade of England should rapidly decline, and that exchange bankers should, in books recently published, say that the reason for such decline is to be found in the fact that foreign nations cannot pay for our goods because they are not allowed to pay in silver. Mr. Ernest Seyd devotes a volume to the treatment of this subject, and M. Théry of Paris has recently dealt with it under the title of 'The Crisis of the Exchanges.' A great change is going on in the 'City' [London] as to monetary matters. The Stock Exchange has become largely bimetallist, and I hear that the Rothschilds have become convinced that only bimetallism, by which the wide and costly fluctuations in the rate of exchange may be obviated, will enable us to retain our trade with the silver-using nations. Moreover, they dread repudiation outright by the silver-using and silver-producing countries."

To these statements answer may be made that, like so many others, the correspondent forgets that the bread-eating populations of European lineage increase by an ever greater annual aggregate; that there has been no increase, but a decrease, of the world's area devoted to the production of the bread-making grains since 1884, and that but for the extraordinary crops of wheat harvested in the United States in 1891 and 1892, when we produced 370,000,000 bushels more than the average from two of the last fourteen crops, the world would long since have been upon short allowance, and prices for both wheat and rye something remarkable.

As each year's addition to the populations of European blood have since 1891 averaged some 5,500,000, such increase implied an increase yearly of about 25,000,000 bushels in the world's requirements for wheat, or an accumulated aggregate during four years of no more than 250,000,000 bushels as against an increase (above average yields) in the United States alone of 370,000,000 bushels; hence it is obvious that our extraordinary contributions to the world's supply have met the increased requirements and left a considerable surplus, which, however, has been partially offset by the world's defective acreage. Moreover, the surplus from our extraordinary harvests has been supplemented by yields above the average in Europe and South America in 1894; yields so much above the average of the last fourteen years as to add quite 100,000,000 bushels to the supply, while like yields in 1893 added another 100,000,000 bushels to the quantity available. In other words, the product from the world's wheat fields during the last four years has been nearly 600,000,000 bushels more than it would have been had the yields from 1891 to 1894 averaged no more per acre than during the fourteen years ending with 1894. Notwithstanding the great increase of the bread-eating populations, and the consequent increase of the world's requirements for wheat, the supply, by reason of extraordinary acreage yields, has been excessive, and prices have fallen to the lowest level known in a century, just as the supply has been continuously overabundant for a greater number of years than within the memory of living man.

Recent and present overabundance results not from any excess of acreage, but is solely due to extraordinary yields, notably and principally in the United States in 1891 and 1892.

Despite the material additions made to the wheat acreage of Argentina and Uruguay during recent years, the world's aggregate wheat-bearing acres are several millions less now than in 1884. This change is due to material reductions in the wheat area of Great Britain and the United States, the reduction in the United States alone exceeding the entire wheat area of the South American countries named. While this has been the trend of changes in the world's wheat area, it is true that from about 1880 to 1889 (owing to an enormous development in the Missouri Valley) the world's wheat acreage was excessive, and a surplus of grain was stored that served to carry the world safely until the harvesting of these extraordinary yields. Still, so great has been the increase of requirements by reason of annual additions to the populations of European blood, and so retrogressive the world's wheat area since 1884, that population first overtook and then outran the power, with average acreage yields, to produce the required wheat. In other words, with no more than average yields per acre from all the lands devoted to the growth of wheat throughout the world, the requirements for bread in the 1895-96 harvest year will be in excess of the world's aggregate product in the measure of average yields from more than 17,000,000 acres.

That the turn in the trend of prices for wheat, as well as a turn in the supply as related to the demand, has come is altogether probable, and it is wholly unlikely that any person now living will ever see English-grown wheat selling for as little as 17 shillings a quarter after December, 1894. And this because the world's wheat acreage for the harvest of 1895 will be some 5,000,000 acres less than in 1884. Despite the additions made in Argentina and Uruguay, the world's wheat acreage has shrunken 3 per cent. in ten years, while the bread-eating populations have increased some 15 per cent., the relative supply having been some 14 per cent. greater in the 1884-85 harvest year than the potential supply of the 1895-96 harvest year. In 1884 the acreage was somewhat excessive.

Doubtless many "city" people are ready to resort to bimetallism as a cure for ills commercial, just as the Lancashire men are ready to resort to it for ills industrial, and for the same reason that the pilgrims resort to Lourdes. People are credulous and don't object seriously to being humbugged, and when less prosperous than formerly and have been told by those to whom they look for guidance that the symptoms indicate a defective currency and that an increase thereof will cure the trouble, they are ready to accept that or any proposed remedy provided its advocates make sufficient noise; and just now the currency doctors are the most vociferous in England, as the tariff mongers so recently were in the United States. These statesmen and savants won't see that the power to produce, except of those things which grow upon the farm, has far outrun the power to consume; that this very increase of the labor unit's power to produce has, by lessening the relative amount of employment as well as by the consequent reduction of wages, diminished the power to consume, and that this lessens the aggregate value, if not the volume, of the exchanges, and that this again has a tendency to still further reduce the power to consume.

Vide one school of the currency mongers! we were to have an immediate return of the golden age of prosperity just as soon as the purchase clause of the Sherman act should be repealed. Another set of doctrinaires promised us that the halcyon days of industrialism would again be with us whenever the McKinley tariff should give place to that of Prof. Wilson; but both these things have come to pass and there has been no material change in either the commercial or industrial situation; nor does such change appear probable unless we can reduce the number of potential producers of manufactured wares or materially increase the number of actual consumers. Present conditions point rather to a reduction of the producers—not alone those potentially productive—and to a further reduction of the unit's power to consume; yet the statesmen who championed the repeal of the Sherman act, as well as those advocating the enactment of the Wilson bill, are not likely to ever learn that the causes producing prosperity, or its antithesis, lie far beyond the reach of legislation, and that existing conditions, making for present and coming industrial and commercial stagnation, follow inevitably from the great development of the labor unit's productive power, and that this is largely, if not wholly, due to the adoption of modern processes and labor-saving devices. Nor do they seem capable of conceiving that the phenomenal prosperity of the commercial and industrial world during so much of the nineteenth century is no longer possible by reason of the decrease in the lands suitable for cultivation and settlement and the very complete exploitation of all possible markets, as well as of an enormous and nearly world-wide development of industrial equipments in recent years, and that future prosperity for any great class is possible only for cultivating owners of the land. They seem just as oblivious of the fact that prosperity must come to the cultivating owner because by no device can acres be multiplied; and that the reverse of prosperity will attend the great mass of producers of other commodities because the products of manufacture are so readily susceptible of infinite multiplication, and that the lands now available for European settlement are so limited as to afford little outlet for the redundant population of the manufacturing nations. Moreover, low prices, due to lessened cost of production, and diminishing profits following competition from excessive equipments, stimulate production by reason of the effort to maintain revenues of manufacturers by increasing the output.

With the world's industrial equipment capable of producing from two to three times as many wares as the world's markets can absorb, no matter how low prices may fall, a return of old-time profits or prosperity are alike impossible. That the industrial equipment is thus excessive is shown in a thousand ways, but it is only necessary to instance the invasion of the metal markets of Great Britain by the steel and iron of Germany and Belgium, and the partial and increasing control of the Asiatic markets by the cotton mills of India and Japan. Worse than this, Japan has not only turned the balance of trade her way, but has already invaded the Western markets. In addition to the facts previously stated in relation to the exportation of Japanese wares to the western coasts of America, mention may be made of the fact that in the construction of the largest hotel at Seattle only Japanese brick were used, and such brick have been exported to England.

If the productive power of the labor unit be multiplied many times, as it has in recent years, without finding an outlet for the added product in new markets or by a relative increase of the unit's power to consume, it is obvious that employment must thereby be greatly lessened relatively, and this destroys the relative power of the producing laborers as a class, as well as the individual's absolute power in many cases, especially where the total revenue shall be reduced more than the cost of the articles required, to consume the things that are so readily fabricated at an ever diminishing cost. To in any commensurate degree preserve the equilibrium the unit's power to consume should be multiplied, in the case of each particular thing, in just the ratio that the labor unit's power to produce shall be enhanced by the adoption of new processes and devices. Failing this, there inevitably results such conditions as now obtain throughout the whole commercial and industrial world; conditions which the currency tinkers propose to cure by so simple a device as adding to the machinery of exchange.

It is not more of the machinery of exchange that is needed, but more customers; more Asiatics and Africans to be draped with the webs of Manchester, and whose persons shall be decked with the gewgaws now made in all other parts of the world as well as in England, France, and Belgium.

Why should not the trade of England decline when so many competitors have entered the field she so long controlled and the last possible market has been glutted with goods? How can any increase of money—the mere machinery of exchange—offset the lack of an adequate number of customers or restore any part of the trade absorbed, and being absorbed by the newly developed industrial Americas, Germanies, Indias, and Japans? Can any possible amount of currency, whether of gold, silver, or paper, restore to either Old or New England the trade in cotton goods already absorbed by the mills of Bombay and Osaka? The hundreds of idle millions in the banks of Europe and America indicate a plethora rather than a scarcity of the machinery exchange, and it would seem that your "city" people, like the drowning man, are catching at straws while resolutely ignoring the fact that customers—except for soil products—are daily growing relatively less, and must continue to as there remain no new markets to open, unless man shall cease to invent labor-saving and employment-destroying devices.

Could production be regulated or restricted, or, better yet, consumption by the unit and in the aggregate materially increased, there would exist the means of improving present conditions and restoring the lost prosperity, but neither is practicable, nor does either seem probable.

The trusts, it is true, have shown that it is practicable to restrict production in certain lines, and that thereby prices may be maintained at a fairly profitable level—sometimes at one excessively profitable; but such restriction has been, and probably always will be, accompanied by a diminution of employment that in itself lessens consumption. Hence trust methods result in loss to the community and are against public policy.

The disease so unpleasantly affecting the industrial and commercial world, notably in western Europe and America, is the inevitable result of the wide adoption of modern processes and improved devices for reducing the cost of production, and while bimetallism may serve to steady the exchanges and afford trifling relief to merchants engaged in the foreign trade, yet no possible addition to the machinery of exchange will bring to the manufacturer the customers he lacks nor furnish to the idle operative the employment that will enable him to consume of the products he so much desires to fashion; nor yet can such an expedient bring employment and profit to capital now idle, because with prices for all manufactures everywhere falling, and with the markets glutted with goods, there is little incentive to increase equipments of production and distribution now so plainly excessive. Moreover, as prices fall, smaller and smaller volumes of currency suffice to effect the exchange of given quantities of products, and the effect of quickened transportation by steam is in the same direction, and, as prices have fallen and continue to fall in a greater ratio by reason of the continued cheapening of the costs of production than increase the quantities of commodities required by an augmenting population, there seems to exist little or no necessity for a material increase of the machinery of exchange.

C. WOOD DAVIS.

NOTES ON SCIENCE AND INDUSTRY.

The introduction of the Fauvel process into the Wyoming mining districts, by W. E. Meade of Cheyenne, has recently been announced. This process, according to an interesting description by Mr. Sanford of the Royal Mint, London, employs heat, air, and water to oxidize the refractory elements and liberate the gold, without the use of either chemicals or electricity. By the time the ore has reached the bottom of the tower it is completely sweetened and is ready for further treatment, this generally consisting in wet amalgamation, and, as water must play an important part in that process, the idea suggested itself that the cumbersome system of trucks and cooling floors might be advantageously replaced by a running stream of cold water. Acting on this, Fauvel made numerous experiments on the effects of quenching the incandescent ore in a bath of cold water, the results being very successful. Each glowing particle, as it falls into the water, causes an instantaneous generation of steam, accompanied by a miniature explosion report; at the same moment, any glaze of film which may have formed on the particles is ruptured, and they are broken down to a remarkably fine state and rendered very brittle. Thus, exceedingly fine crushing is not necessary, and the output of the mill can be greatly increased. The ore is reduced so minutely as to make the retention of gold impossible, and the film of oxide, so apt to coat the grains, is removed, the gold being rendered clean and shining, specially adapted to amalgamation.

From some unknown source the following unique method of photographing designs on tissues is reported: The tissues are first plunged in a bath of primuline, to which common salt has been added; they are then washed, and afterward immersed for a quarter of a minute in a bath containing 0.25 per cent. of nitrate of soda, strongly acidulated by nitric or hydrochloric acid. After another washing, and while the tissue is still moist, or after it has been dried in the dark, the photographic negative plates to be reproduced are applied above, and the whole exposed to the light, on a clear day and in brilliant sunlight half a minute exposure sufficing, but on a dull day thirty minutes being required. After the lapse of the necessary time—a small piece of tissue exposed being used as a test of the printing—the tissue is plunged into the developing bath; if not, it is placed in the dark, the development being carried out as for colors dyed in wool. As in the process of ordinary photograph printing, familiar to all, the color is developed in this method at the spots where the plates have prevented the action of the light, while it is not developed elsewhere, and interesting work is the result.

Wood pulp pipes, now coming into vogue for special uses, are manufactured by a very simple process. The pulp, says the *Scientific American*, is agitated with water and rolled upon a tube, and, after being thus wound to a sufficient thickness around the tube and the extra amount of water drained away, it is placed on end and the interior mould is withdrawn, leaving the wood pulp tube, which is held on suitable supports and dried until the water is evaporated. The further process consists in dipping it into a very hot solution of asphaltum and other materials, which penetrate the whole substance; the ends are then squared up and the threads cut, or taper finish is made in the usual manner of wrought-iron pipe. This material, when finished, possesses high electrical resistance, rendering it suitable for underground conduits for electric wires, and, as a non-conductor, it is free from being impaired by electrolytic action from earth return currents, which have become such a serious factor in impairing the water and gas pipes in cities where the street tram cars are propelled by electric motors using earth return currents; its resistance to acids and alkalies fits it for use in chemical works, and as a non-absorbent of water it is free from any difficulties due to expansion and contraction. The bursting strength of the tube is said to be from 150 to 250 pounds per square inch, according to the size.

The difficulties attending the production of chlorine, and the impossibility of transmitting it in the gaseous state, remarks a writer in *Knowledge*, have combined to render chloride of lime in this country and chloride of soda in France the only forms in which this indispensable bleaching agent can be put upon the market; and, in view of the fact that chloride of lime at its best does not contain more than thirty-eight per cent. of available chlorine, the advantage to be obtained in the matter of freight by transporting pure liquid chlorine instead of bleaching powder is apparent. The actual manufacture of liquid chlorine is now carried on by a firm of alkali makers at Salindres, the process, as stated by M. Fribourg, being as follows: The condensing pump is provided with a piston of sulphuric acid, as being the best packing for withstanding the attack of the chlorine, and, to render such a piston effective, a pump is used in the form of a U-shaped tube of cast iron, lined with lead; the limb of this tube, which is to receive the chlorine, is partly filled with strong sulphuric acid, while the other limb contains petroleum oil, and is provided with an ordinary piston. The up-stroke of the piston raises the petroleum, lowers the sulphuric acid, and allows the chlorine to flow into the vacuum thus formed through a side tube provided with a leaden(?) valve; the down-stroke compresses the chlorine through another pipe into the refrigerated receiver, reëntry into the regenerator being prevented by the valve. The receivers in which the liquid is transported are wrought iron or steel cylinders, these weighing each some 225 pounds, and capable of containing one hundredweight of liquid chlorine.

The ingenious Walrand-Legenisel process for steel castings is explained in detail in a paper recently read before the Iron and Steel Institute, London. The process consists simply in adding to the metal in the converter at the end of the ordinary blow a definite quantity of melted ferro-silicon, then making the after-blow, turning down when the extra silicon has been burned out, and adding the ordinary final amount of ferro-manganese, &c., as required by circumstances. The advantages claimed for this process are, first, that an ordinary Bessemer pig iron can be used with two to three per cent. silicon, thus insuring a steel perfectly free from carbon; secondly, the combustion of the added silicon produces such a large amount of heat at the right time, and so rapidly, that the metal becomes very fluid; third, as the silicon burns to a solid, it leaves the metal entirely free from gas, the steel being, therefore, sound, and with no gas cavities; then, too, the metal, being so fluid and already free from oxide of iron, the ferro-manganese or other substance added, such as aluminum, is more effective, and remains in the final steel.

A Denver, Col., inventor has constructed a new gold-saving device for accomplishing with currents of air and motion what water and motion will do in a pan or sluice. The machine is described as a box, suspended at any desired angle in a frame, having a rapid side motion or shake, and at the upper end of the box is a hopper, over which a screen is placed of any desired mesh, and having an outlet or spout, all dirt being thrown or deposited upon this screen; from the hopper beneath, the dirt is dropped or fed upon a rapidly revolving spiked wheel which pulverizes and disintegrates the dirt, and, in front of this wheel, is a stationary breaker through and against which the dirt is thrown or driven, which then passes across an air chamber attached to the bottom of the box. Over this air chamber is a fine screen, to which a number of riffles are attached, and air is driven into the air chamber from a blower beneath. The air, passing thus through the fine screen under the riffles and coming in contact with the dirt, combined with the rapid side motion, not only carries the dirt over the riffles, but causes the gold to be sifted to the bottom and retained in the riffles.

A method of testing the amount of moisture in steam has been discussed by the Institution of Engineers and Shipbuilders, Scotland. The principle in this case, more particularly applicable to marine engines, consists in comparing the saltness of the steam with that of the water in the boiler. The test, as explained, is carried out by means of nitrate of silver, and the reaction is so delicate that, with only one per cent. of salt in the boiler, one per cent. of priming water can be accurately determined to the second decimal. To one part of salt boiler water there is added 100 parts of pure condensed water, and into this is poured a small quantity of concentrated solution of yellow chromate of potash; then a nitrate of silver solution containing about one-tenth per cent. of this salt is slowly added. With each drop the salt water turns locally orange red, but this color disappears at first; later on, when all the salt has been acted on, the whole fluid changes color from pale yellow to orange. The quantity of nitrate solution is noted, and then the experiment is repeated on the condensed steam from the engine undiluted with distilled water. The ratio of the quantities of nitrate of silver solution used in the two tests expresses the amount of priming in per cent.